



State of Washington
POLLUTION LIABILITY INSURANCE AGENCY
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www.plia.wa.gov

December 29, 2021

Mr. Alan Cubberly
Circle K Stores, Inc.
110 Situs Court, Suite 100
Raleigh, NC 27606

Re: No Further Action at the Following Site:

- **Facility/Site Name:** Circle K #2706032
- **Facility/Site Address:** 590 Gage Boulevard, Richland, Washington 99352
- **Facility Site ID:** 95512514
- **PTAP Project No.:** PC023

Dear Mr. Cubberly:

The Washington State Pollution Liability Insurance Agency (PLIA) received your request for an opinion on your independent cleanup of Circle K #2706032 (Site) by Blaes Environmental.

This letter provides our opinion. Opinions by the Pollution Liability Insurance Agency (PLIA) are made under the authority of Chapter 70A.330 RCW and the Model Toxics Control Act (MTCA), Chapter 70A.305 RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

PLIA has determined that **no further remedial action is necessary** to clean up petroleum contamination at the Site. This opinion only applies to the petroleum contamination and petroleum related constituents at the Site.

Further remedial action is necessary elsewhere on the Site to remediate residual metals in groundwater. The Property will remain listed for metals.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Chapter

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173-340 WAC (collectively “substantive requirements of MTCA”). The analysis is provided below.

Description of the Property and the Site

This opinion applies only to the Site located at 590 Gage Boulevard, Richland, Washington 99352 and comprises one Benton County tax parcel described below and in Enclosure A. This opinion does not apply to any other release(s) that may affect the Site (parcels). Any such releases, if known, are identified separately below.

1. Description of the Property:

The Property includes the following tax parcel in Benton County, affected by the Site and addressed by your cleanup (Figs. 1 & 2):

- Tax Parcel No.: 126984000012000

2. Description of the Site:

The parcel makes up the Site, and is defined by the nature and extent of contamination associated with the following release (Fig. 1 through 4):

- Total petroleum hydrocarbons: TPH-g (gasoline), TPH-d (diesel) and TPH-o (Oil) into the soil, groundwater and vapor.
- Volatile organic compounds; benzene, toluene, ethylbenzene, and total xylenes (collectively BTEX), and naphthalene into the soil and groundwater.

3. Identification of other sites that may affect the Property.

Please note that a parcel of real property can be affected by multiple sites. **The Property is affected by a separate site consisting of arsenic and lead above MTCA Method A Cleanup Levels (CULs) in groundwater. Further action is necessary to address this contamination at the Property.**

Enclosure A includes a diagram of the Site, as currently known to PLIA.

Basis of the Opinion

This opinion is based on the information contained in the following documents:

1. Response to PLIA Request for Additional Information on Arsenic and Lead in Groundwater, Circle K #2706032, 590 Gage Boulevard, Richland, Washington 99352. Prepared by Blaes Environmental of July 2, 2021.
2. Groundwater Monitoring Report, Circle K Store #2706032, 590 Gage Boulevard,

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- Richland, Washington, 99352. Prepared by Blaes Environmental of April 19, 2021.
3. Additional Site Characterization Report, Circle K Store #2706032, 590 Gage Boulevard, Richland, Washington, 99352. Prepared by Blaes Environmental of December 5, 2020.
 4. Groundwater Monitoring Report, Circle K Store #2706032, 590 Gage Boulevard, Richland, Washington, 99352. Prepared by Blaes Environmental of December 5, 2020.
 5. Initial Site Characterization Report, Circle K Store #2706032, 590 Gage Boulevard, Richland, Washington, 99352. Prepared by Blaes Environmental of November 4, 2019.
 6. Groundwater Monitoring Report, Circle K Store #2706032, 590 Gage Boulevard, Richland, Washington, 99352. Prepared by Blaes Environmental of May 27, 2020.
 7. Underground Storage Tank Removal Report, Circle K Store #2706032, 590 Gage Boulevard, Richland, Washington, 99352. Prepared by Blaes Environmental of May 2, 2019.

Documents submitted to PLIA are subject to the Public Records Act (Chapter 42.56 RCW). To make a request for public records, please email pliamail@plia.wa.gov.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

PLIA has concluded that **no further remedial action** is necessary at the Site. Our conclusion is based on the following analysis:

1. History and Characterization of the Site

The petroleum Site is located on the northwest corner of West Gage Boulevard and Leslie Road in Richland, Washington. The Site formerly consisted of a concrete and asphalt-paved gas station with one single-story convenience store building and six product dispensers. Three 10,000-gallon underground storage tanks (USTs) containing gasoline and one 10,000-gallon UST containing diesel were removed in April 2019. Petroleum contamination at the Site is associated with the historical use of a gas station and was located near product piping and product dispenser islands (Fig. 2, Tables A1 and A2).

The Site sits at approximately 496' above mean sea level and is relatively flat with slight slopes toward the south and east. The Property is located within the Columbia Basin. Subsurface soils consist of silty sand, silty clay and clayey, sandy, silt, with lenses of sandy gravel from ground surface down to approximately 10' below ground surface (bgs). Groundwater was encountered at the Site from approximately 8'-9' bgs.

Conceptual Site Model (Exposure Pathways)

The Conceptual Site Model summarizes the primary transport mechanisms of potential spills and leaks from their primary sources; their fate and transport and exposure pathways through soil/groundwater/vapor to the receptors that potentially may include humans, aquatic/marine and terrestrial organisms. (Figs. 2 & 3).

- i. **Soil Direct Contact:** Petroleum contaminated soil (PCS) was identified in the vicinity of the former product piping and near the easternmost, former dispenser islands during UST removal. TPH-g was identified above the MTCA Method A CULs near the piping at borings P-2 and P-4 between 4' and 7' bgs (Table A1). TPH-g was also identified in proximity to the dispensers at boring D-6 above the MTCA Method A CUL. Benzene, toluene, ethylbenzene, and xylenes were also identified above the MTCA Method A CULs at P-2, P-4, and D-6 (Fig. 2, Table A1). Shallow soil contamination was identified on Site within the depths (0 to 15' bgs) that humans (utility workers and property developers) may come in contact.

Result: The soil direct contact exposure pathway was a concern at this Site.

ii. **Groundwater:**

- **Depth to Groundwater:** Blaes Environmental identified groundwater at a depth of 8' to 9' bgs.
- **Groundwater Flow:** Groundwater flow is predominantly to the east (Fig. 5).
- **Groundwater Narrative:** Groundwater monitoring data collected by Blaes Environmental from open-pit grab samples indicated the presence of TPH-g and TPH-d above the MTCA Method A CULs (Fig 2, Table A2).

Result: The soil to groundwater exposure pathway was a concern at this Site.

iii. **Vapor Exposure:**

- **Lateral Inclusion Zone:** Building footprints within the lateral inclusion zone of 30' or within a 15' vertical separation distance from the edge of a contaminant source that is above the MTCA Method A unrestricted land use (soil or groundwater) may require vapor assessment or mitigation. The lateral inclusion zones and vertical separations are the areas surrounding a contaminant source through which vapor phase

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contamination might travel and intrude into buildings (ITRC 2018, EPA 2018, Ecology Draft VI Guidance update 2018).

- **Vapor Narrative:** The land use of the Site is currently used as a convenience store. Petroleum contaminated groundwater at a depth of approximately 9' bgs is within the lateral inclusion zone.

Result: The soil vapor exposure pathway was a concern at this Site.

iv. Surface Water:

- **Distance to Nearest Surface Water:** An unnamed stream is located approximately 1,100' east of the property (Fig. 1).
- **Surface Water Narrative:** Groundwater monitoring data show that local groundwater has been contaminated from historical uses.

Result: The groundwater to surface water exposure pathway was a concern at this Site.

2. Establishment of Cleanup Standards and Points of Compliance

PLIA has determined the cleanup levels and points of compliance you established for the Property meet the substantive requirements of MTCA.

i. Cleanup Levels (CUL):

<i>Table 1. The proposed soil and groundwater cleanup levels are:</i>			
Contaminants of Concern (COCs)	Method A Soil Cleanup Level Unrestricted Land Use mg/kg	Method B Soil Cleanup Level Unrestricted Land Use mg/kg	Method A Groundwater Cleanup Level ug/l
TPH-d	2,000		500
TPH-g	30/100*		800/1,000*
TPH-o	2,000		500
Benzene (carcinogen)	0.03		5
Toluene	7		1,000
Ethylbenzene	6		700
Xylene	9		1,000
Total Lead	250		15

*When Benzene is not present.

<i>Table 2. The proposed vapor cleanup levels are:</i>		
Contaminants of Concern (COCs)	Method B Sub-Slab/Soil Gas Screening Levels ug/m ³	Method B Indoor/Air Cleanup Levels ug/m ³

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Benzene (carcinogen)	10.7	0.321
Toluene	15,600	2,290
Ethylbenzene	15,200	457
Xylene	310	45.7
Total Lead	-	-
Naphthalene (carcinogen) (does <u>not</u> include 1-methyl and 2-methyl naphthalene)	2.45	0.0735
Total Petroleum Hydrocarbon (TPH)	4,700*	140
APH [EC5-8 Aliphatics]	90,000	2,700
APH [EC9-12 Aliphatics]	4,700	140
APH [EC9-10 Aromatics]	6,000	180

* Based on the current attenuation factor of 0.03.

ii. Points of Compliance:

The proposed cleanup levels must be met at the following Points of Compliance (POC):

Soil-Direct Contact: For CULs based on human exposure via direct contact, the standard POC is: “...*throughout the Site from ground surface to 15 feet below the ground surface.*” This is in compliance with WAC 173-340-740(6)(d) and represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of Site development activities.

Groundwater: For groundwater, the standard POC as established under WAC 173-340-720(8) is: “...*throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.*”

Air/Vapor: CULs need to be attained in the ambient air throughout the Site, including indoor air within the lateral and vertical inclusion zone (WAC 173-340-750[6]).

3. Past Remedial Actions at the Site

PLIA has determined past remedial actions conducted at the Site **have been sufficient** to meet CULs at the POC.

April 2019: Blaes Environmental oversaw the removal of the four 10,000-gallon diesel and gasoline USTs located at the Site. During removal, groundwater was encountered at depths of 8’ to 9’ bgs. The dispenser islands, and product piping were removed from the Site. Twenty-one soil samples were collected within the UST excavation, beneath the former dispenser islands, and the former product piping. Contamination above the MTCA Method A CULs was identified at P-2, P-4, and D-6

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(Fig 2, Table A1). Groundwater grab-samples were collected from the open-pit excavation indicating the likelihood of petroleum contaminated groundwater (Fig 2, Table A2). Following sampling activities, the excavation was backfilled.

July 2019 - May 2020: Blaes Environmental conducted a Site characterization, installing five groundwater monitoring wells along the perimeter and interior of the property. Four groundwater samples were collected from all monitoring wells. MW-2 indicated the presence of TPH-o above the MTCA Method A CUL during September 2019 (Fig. 3, Tables A4 and A5).

November 2020 - May 2021: Blaes Environmental collected additional groundwater samples from the monitoring wells on the property and installed MW-6. MW-6 was installed down-gradient from MW-2. Petroleum range contamination was not identified above the MTCA Method A CULs during sampling events.

Blaes Environmental conducted additional soil sampling in November to determine if any PCS above the MTCA Method A CULs remained on Site following over-excavation activities conducted on Site in 2019. An additional 24 soil samples were collected in the vicinities of P-2, P-4 and D-6. Soil samples collected indicated that PCS above the MTCA Method A CUL was no longer present on the property (Fig 3, Table A3).

4. Selection of Cleanup Action

PLIA has determined that the cleanup action you selected meets cleanup standards established for the Site and they include:

- UST removal and over-excavation in the vicinity of product piping and dispenser islands.
- Confirmation sampling of previous over-excavation to verify soil above MTCA Method A CULs was successfully removed.
- Groundwater monitoring from 2019-2021.

5. Cleanup of the Site

PLIA has determined the cleanup action you performed meets the substantive requirements of MTCA and met CULs at the POC at this Site.

i. Soil:

- **Soil Direct Contact Narrative (Post-Cleanup):** Following the initial soil sampling, excavation was performed at the Site to remove PCS in the vicinities of samples above the MTCA Method A CULs. Confirmational sampling was conducted in 2020 to determine if the excavation was successful in removal of the PCS above the CULs. Nine additional borings were advanced on Site, indicating that remedial excavation conducted in

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2019 was successful in removing PCS above the MTCA Method A CUL (Fig. 3, Table A3).

Result: The soil direct contact exposure pathway is no longer a concern at this Site.

ii. Groundwater:

- Groundwater was encountered at approximately 8' to 9' bgs and flows toward the east. Performance groundwater monitoring at MW-1, MW-2, MW-3, MW-4, and MW-5 for four consecutive quarters resulted in CULs below the MTCA Method A (Fig. 4, Tables A4 and A5).

Result: The soil to groundwater leaching exposure pathway is no longer a concern at this Site.

iii. Vapor Exposure:

- Quarterly groundwater monitoring and excavation of the PCS indicated groundwater contamination is no longer present at the Site.

Result: The vapor exposure pathway is no longer a concern at this Site.

iv. Surface Water:

Result: The groundwater contamination pathway has been resolved, therefore the groundwater to surface water pathway is no longer a concern at this Site.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Under the MTCA, liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release(s) of hazardous substances at the Site. This opinion **does not**:

- Change the boundaries of the Site.
- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with the Office of the Attorney General and the Department of Ecology under RCW 70A.305.040 (4).

2. Opinion does not constitute a determination of substantial equivalence.

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To recover remedial action costs from other liable persons under the MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is equivalent. Courts make that determination (RCW 70A.305.080 and WAC 173-340-545).

3. State is immune from liability.

The state, PLIA, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion.

Termination of Agreement

Thank you for choosing to cleanup your Site under the Petroleum Technical Assistance Program (PTAP). This opinion terminates the PTAP Agreement governing project PC023, Circle K #2706032.

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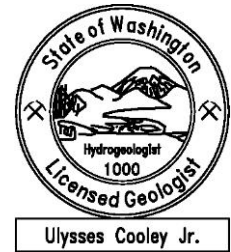
Contact Information

If you have any questions about this opinion, please contact me by phone at 1-800-822-3905, or by email at kory.neidich@plia.wa.gov.

Sincerely,

DocuSigned by:
Kory Neidich
85041E045F3B4FA...
Kory Neidich
Site Manager

DocuSigned by:
Ulysses Cooley Jr.
569D5AC8B883494...
Ulysses Cooley Jr., P. HG., P.G
Hydrogeologist



Enclosure A: Figure 1: Site Vicinity Map
Figure 2: Site Investigation Map
Figure 3: Excavation Performance Soil Sampling
Figure 4: Groundwater Monitoring Wells
Figure 5: Groundwater Flow Direction

Table A1: 2019 UST Decommissioning Soil Samples
Table A2: 2019 UST Decommissioning Groundwater Sample Results
Table A3: Performance Soil Analytical Results
Table A4: Groundwater Monitoring
Table A5: Groundwater Monitoring Results Continued

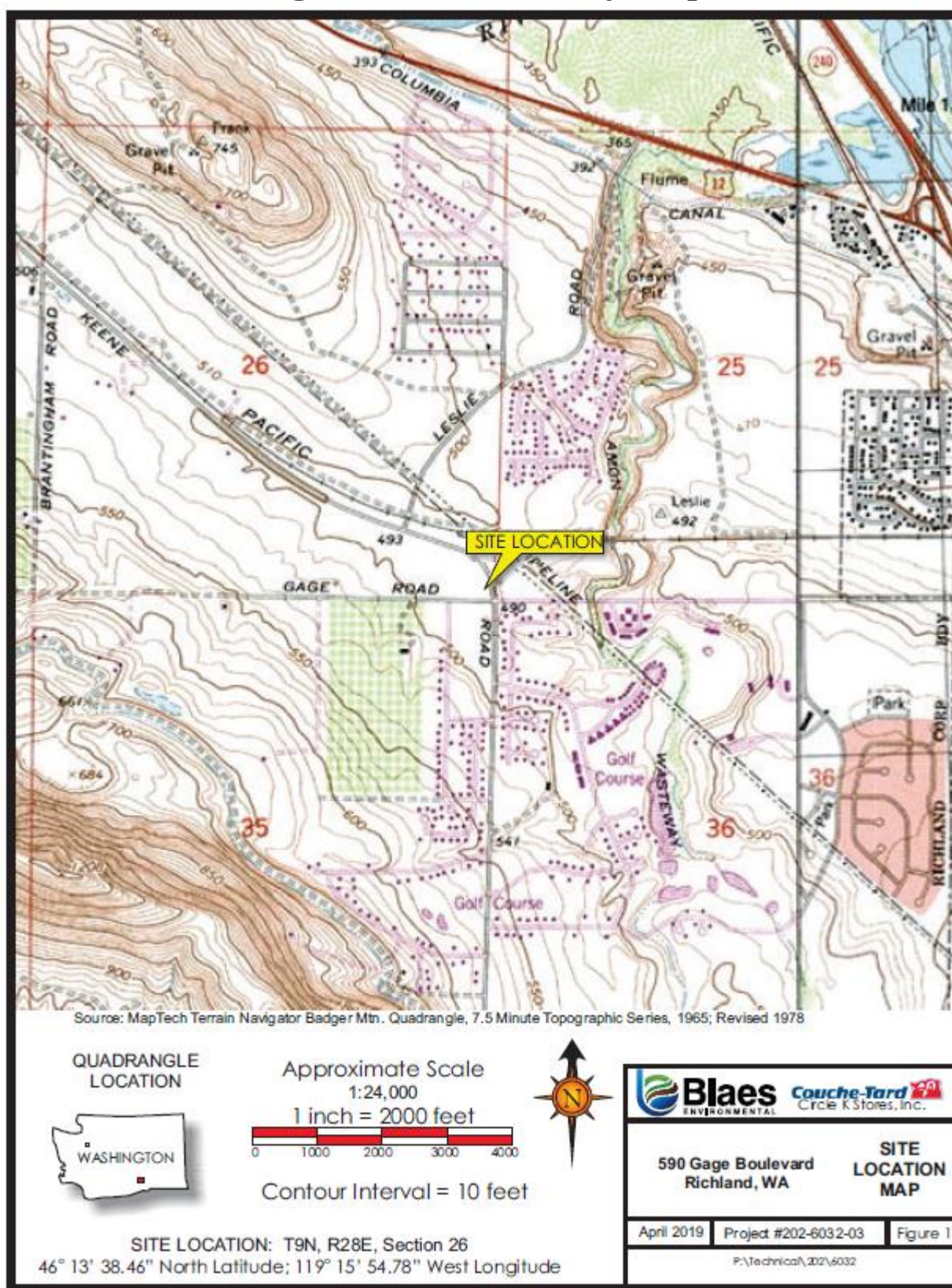
cc: Mr. Dan Blaes, Blaes Environmental (by email)
Ms. Carrie Pederson, PLIA (by email)
Ms. Kristin Evered, PLIA (by email)
Mr. Tyler Betz, PLIA (by email)

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Enclosure A:
Circle K #2706032 Site
PTAP Project No. PC023

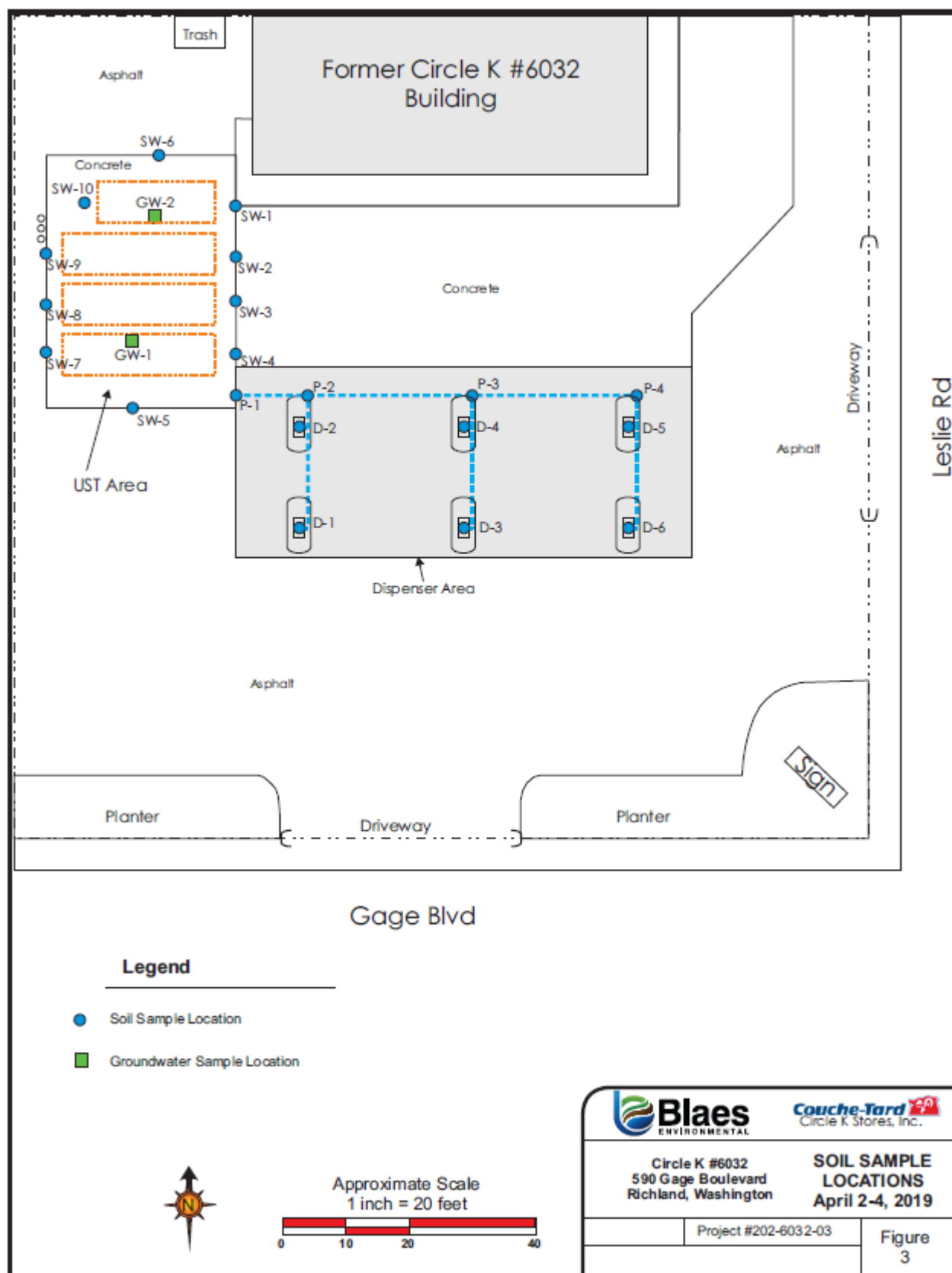
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Figure 1: Site Vicinity Map



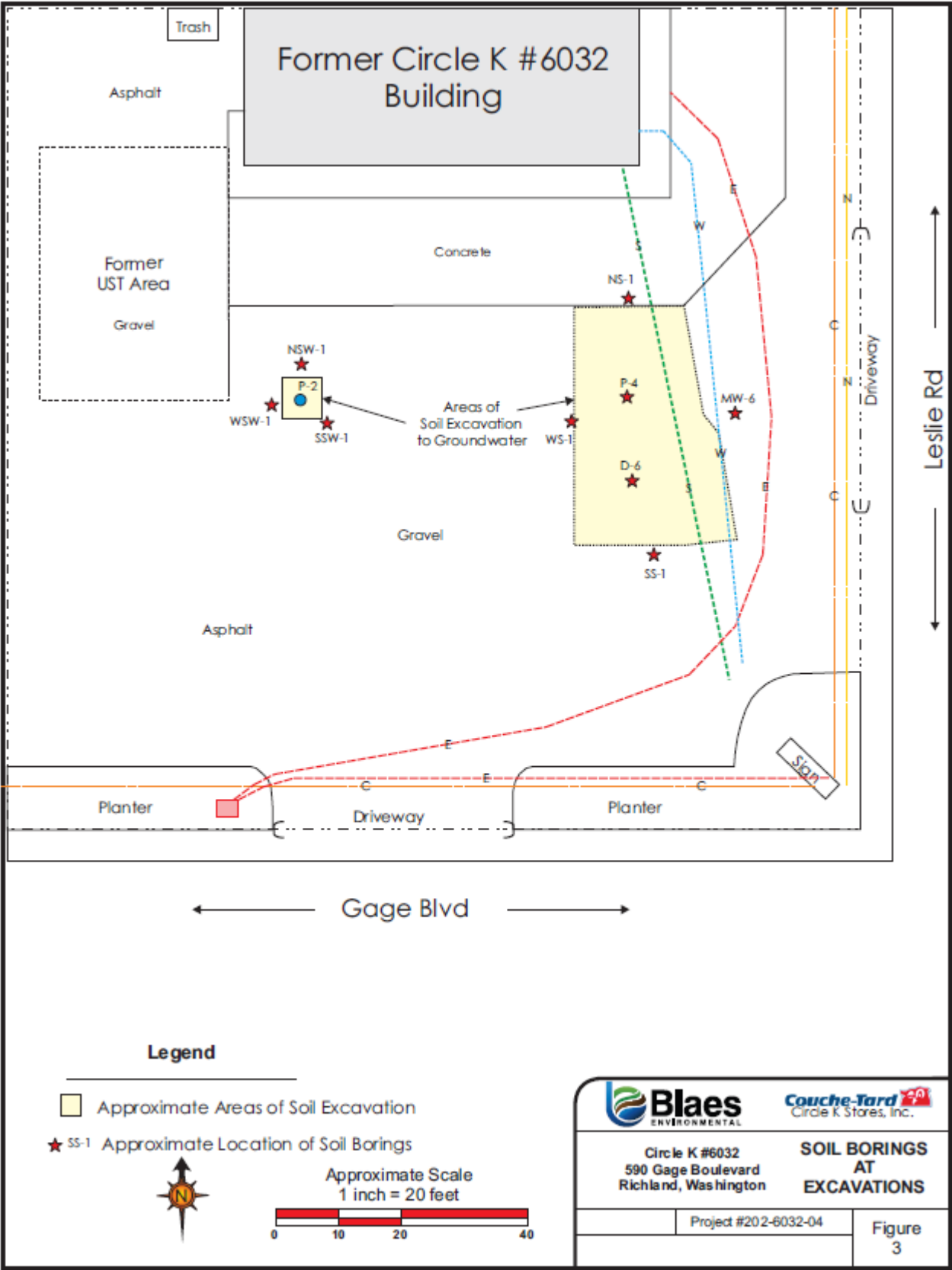
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Figure 2: Site Investigation Map



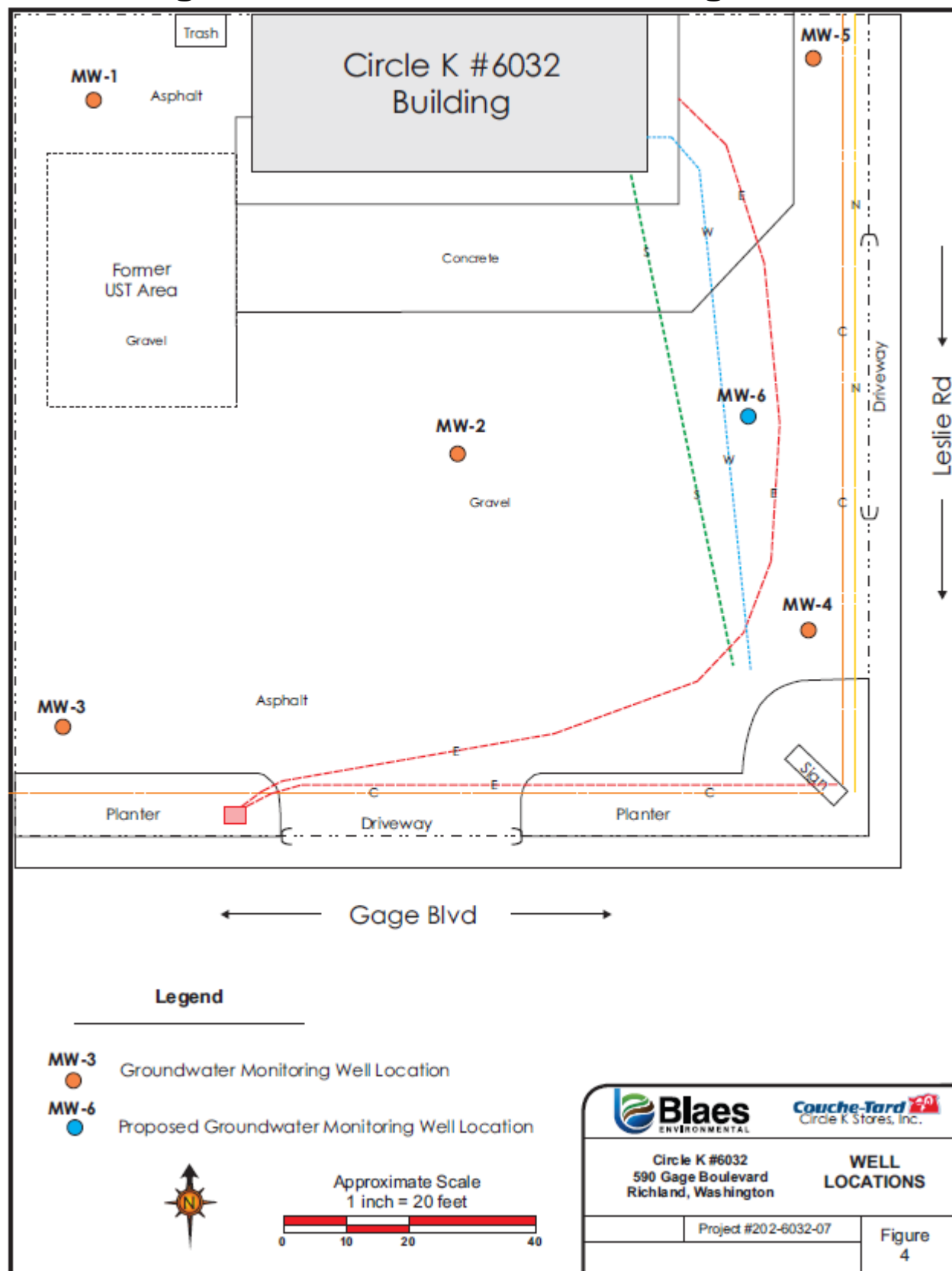
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Figure 3: Excavation Performance Soil Sampling



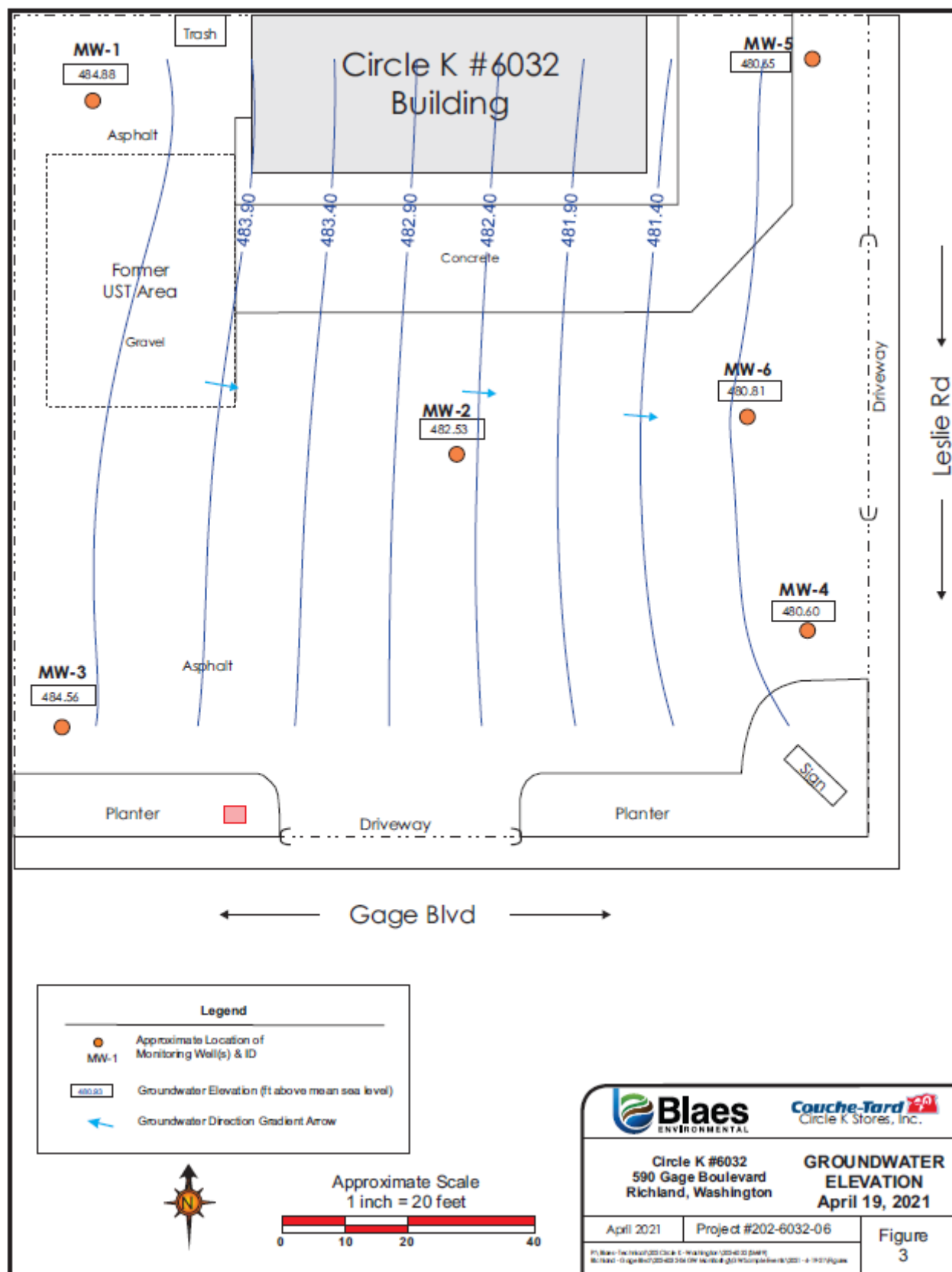
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Figure 4: Groundwater Monitoring Wells



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Figure 5: Groundwater Flow Direction



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Table A1: 2019 UST Decommissioning Soil Samples

TABLE 3

SOIL SAMPLE LABORATORY ANALYTICAL RESULTS CIRCLE K #2706032 RICHLAND, WASHINGTON

Sample ID	Sample Date	Sample Depth	TPH-Gx Mg/Kg	TPH-Dx Mg/Kg	TPH-Oil Mg/Kg	Benzene Mg/Kg	Toluene Mg/Kg	Ethylbenzene Mg/Kg	Xylenes Mg/Kg	MTBE Mg/Kg	Napthalene Mg/Kg	1,2,4-TMB Mg/Kg	1,3,5-TMB Mg/Kg	EDB Mg/Kg	EDC Mg/Kg	Lead Mg/Kg
UST Zone Sidewall Samples																
SW-1	4/4/2019	7"	<5.8*	<80	<80	<0.0018	<0.0088	<0.0018	<0.0132	<0.0018	<0.0088	<0.0044	<0.0048	<0.00088	<0.00088	5.8
SW-2	4/4/2019	7"	<5.2*	<52	<52	<0.0019	<0.0093	<0.0019	<0.0139	<0.0019	<0.0093	<0.0048	<0.0048	<0.00093	<0.00093	2.9
SW-3	4/4/2019	7"	<5.9*	<80	<80	<0.002	<0.010	<0.0020	<0.015	<0.0020	<0.010	<0.0050	<0.0048	<0.001	<0.001	6.5
SW-4	4/4/2019	7"	<6.9*	<88	<88	<0.0021	<0.010	<0.0021	<0.0152	<0.0021	<0.010	<0.0052	<0.0052	<0.001	<0.001	13
SW-5	4/4/2019	7"	<5.8*	<57	<57	<0.0017	<0.0083	<0.0017	<0.0125	<0.0017	<0.0083	<0.0042	<0.0047	<0.00083	<0.00083	5.7
SW-6	4/4/2019	7"	<5.4*	<58	<58	<0.0016	<0.0078	<0.0016	<0.0117	<0.0016	<0.0078	<0.0039	<0.0042	<0.00078	<0.00078	6.5
SW-7	4/4/2019	7"	<6.2*	<59	<59	<0.0019	<0.0095	<0.0019	<0.0143	<0.0019	<0.0095	<0.0048	<0.0048	<0.00095	<0.00095	4.9
SW-8	4/4/2019	7"	<5.9*	<58	<58	<0.0018	<0.0089	<0.0018	<0.0133	<0.0018	<0.0089	<0.0048	<0.0048	<0.00089	<0.00089	6.5
SW-9	4/4/2019	7"	11	<81	<81	<0.0018	<0.0091	<0.0018	<0.0138	<0.0018	<0.0091	<0.0045	<0.0045	<0.00091	<0.00091	6.3
SW-10	4/4/2019	7"	<11*	<56	<56	<0.0017	<0.0083	<0.0017	<0.0123	<0.0017	0.022	0.019	<0.0043	<0.00083	<0.00083	5.6
Product Piping Samples																
P-1	4/2/2019	4'	<10	<54	<54	0.0019	<0.0094	<0.0019	0.0141	<0.0019	<0.0094	<0.0047	<0.0047	<0.00094	<0.00094	4.9
P-2	4/2/2019	4'	350	<57	<57	0.0025	0.012	0.0024	0.011	<0.002	<0.0099	<0.0049	0.0065	<0.00099	<0.00099	7.8
P-3	4/2/2019	4'	<11	<84	<84	0.0035	0.011	<0.002	<0.0149	<0.002	<0.0099*	<0.0050	<0.0050	<0.00099	<0.00099	7.7
P-4	4/2/2019	4'	490	950	<83	69	920	110	580	<1.00	0.076*	180	62	<0.0011	<0.0011	11
P-4	4/3/2019	7"	800*	200	<57	2	51	9.8	58	<0.990	3	26	8.8	<0.001	<0.001	8.7
Dispenser Samples																
D-1	4/2/2019	4'	<6.5*	<82	<82	0.017	0.068	0.0035	0.015	<0.0020	<0.0099	0.0059	<0.0050	<0.00099	<0.00099	9.5
D-2	4/2/2019	4'	13	<55	<55	0.0028	0.010	<0.0017	<0.0128	<0.0017	<0.0084	<0.0042	<0.0042	<0.00084	<0.00084	5.5
D-3	4/2/2019	4'	<6.5*	<83	<83	0.0038	0.015	<0.0020	<0.0151	<0.0020	<0.010*	<0.0051	<0.0051	<0.001	<0.001	4.4
D-4	4/2/2019	4'	<12	<85	<85	0.0027	<0.010	<0.002	<0.0151	<0.002	<0.010*	<0.0051	<0.0051	<0.001	<0.001	8.5
D-5	4/2/2019	4'	6.7*	<82	<82	0.0051	0.022	<0.0019	0.019	<0.0019	<0.0097*	<0.0048	<0.0048	<0.00097	<0.00097	9.5
D-6	4/2/2019	4'	380*	<84	<84	5.1	53	5.8	327	<0.0019	0.015	11	3.7	<0.0094	<0.0094	12
MTCA Method A			30 or 100	2,000	2,000	0.03	7	6	9	0.1	5	NA	NA	0.005	NA	250

NOTES:

mg/kg -- milligrams per kilogram (parts per million)
 MTBE -- Methyl tert butyl Ether
 TMB -- Trimethylbenzene
 TPH-Gx -- Total Petroleum Hydrocarbons - Gasoline Range
 TPH-Dx -- Total Petroleum Hydrocarbons - Diesel Range
 TPH-Oil -- Total Petroleum Hydrocarbons - Oil Range
 "ND" -- Analyte not detected at or above the given laboratory method reporting limit.
 - -- Not Analyzed
 * -- Several Analytes Flagged with Qualifiers
 Bold -- Concentrations Detected Above Method Reporting Limits
 -- Concentrations Detected Above MTCA Method A
 MTCA -- Model Toxics Control Act
 Method A -- Method A Soil Cleanup Levels for Unrestricted Land Uses (2013)

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Table A2: 2019 UST Decommissioning Groundwater Sample Results

TABLE 4

GROUNDWATER LABORATORY ANALYTICAL RESULTS
 CIRCLE K #2706032 RICHLAND, WASHINGTON

Sample ID	Sample Date	TPH-Gx ug/L	TPH-Dx ug/L	TPH-Oil ug/L	Benzene ug/L	Toluene ug/L	Ethylbenzene ug/L	Xylenes ug/L	MTBE ug/L	Napthalene ug/L	1,2,4-TMB ug/L	1,3,5-TMB ug/L	TCE ug/L	PCE ug/L	EDB ug/L	EDC ug/L	Lead ug/L
UST Zone Groundwater Samples																	
GW-1	4/4/2019	10,000	1,700	<350	1.5	22	56	1,010	<0.30	210	170	180	0.82	0.72	<0.010	<0.20	9.7
GW-2	4/4/2019	4,800	890	<350	3.0	39	33	460	<0.30	110	81	82	<0.20	0.53	<0.010	<0.20	9.6
MTCA Method A		800	500	500	5	1,000	700	1,000	20.0	160	NA	NA	5	5	0.01	5	15

NOTES:

ug/L – micrograms per liter (parts per billion)
 MTBE – Methyl tert butyl Ether
 TPH-Gx – Total Petroleum Hydrocarbons - Gasoline Range
 TPH-Dx – Total Petroleum Hydrocarbons - Diesel Range
 TPH-Oil – Total Petroleum Hydrocarbons - Oil Range
 " ND " – Analyte not detected at or above the given laboratory method reporting limit.
 - – Not Analyzed
 * – Several Analytes Flagged with Qualifiers
 Bold – Concentrations Detected Above Method Reporting Limits
 Concentrations Detected Above MTCA Method A
 MTCA – Model Toxics Control Act
 Method A – Method A Soil Cleanup Levels for Unrestricted Land Uses (2013)

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Table A3: Performance Soil Analytical Results

TABLE 1

SUMMARY OF SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

Circle K Store #2706032
590 Gage Boulevard
Richland, Washington

Sample ID	Date Collected	NWTPH-GX (mg/Kg)	NWTPH-DX (mg/Kg)	NWTPH-O (mg/Kg)	EPA Method 8260															Lead (mg/Kg)	Other VOCs ug/L
					Benzene (ug/Kg)	Toluene (ug/Kg)	Ethylbenzene (ug/Kg)	m-Xylenes p-Xylenes (ug/Kg)	o-Xylenes (ug/Kg)	MTBE (ug/Kg)	EDB (ug/Kg)	EDC (ug/Kg)	Naph (ug/Kg)	Isopropyl ug/L	1,2,4-TMB ug/L	1,3,5-TMB ug/L	Arsenic (mg/Kg)				
MW-1 4'	7/30/2019	<7.3	<300	320	<1.8	<9.2	<1.8	<9.2	<4.6	<1.8	<0.92	<0.92	<9.2	<1.8	<4.6	<4.6	7.5	7.9	None		
MW-1 8'	7/30/2019	<5.3	<56	<56	<1.7	<8.7	<1.7	<8.7	<4.3	<1.7	<0.87	<0.87	<8.7	<1.7	<4.3	<4.3	11	7.0	None		
MW-2 4'	7/30/2019	<6.5	<61	<61	<2.1	<10	<2.1	<10	<5.2	<2.1	<1.0	<1.0	<10	<2.1	<5.2	<5.2	12	8.7	None		
MW-2 7'	7/30/2019	<6.5	<60	<60	<2.2	<11	<2.2	<11	<5.5	<2.2	<1.1	<1.1	<11	<2.2	<5.5	<5.5	7.5	4.2	None		
MW-3 4'	7/30/2019	<5.9	<60	<60	<1.9	<9.4	<1.9	<9.4	<4.7	<1.9	<0.94	<0.94	<9.4	<1.9	<4.7	<4.7	6.1	3.5	None		
MW-3 7'	7/30/2019	<6.0	<62	<62	<1.8	<8.9	<1.8	<8.9	<4.5	<1.8	<0.89	<0.89	<8.9	<1.8	<4.5	<4.5	9.2	7.4	None		
MW-4 4'	7/30/2019	<6.3	<60	<60	<2.1	<10	<2.1	<10	<5.1	<2.1	<1.0	<1.0	<10	<2.1	<5.1	<5.1	17	6.7	None		
MW-4 7'	7/30/2019	<5.3	<56	<56	<1.8	<8.8	<1.8	<8.8	<4.4	<1.8	<0.88	<0.88	<8.8	<1.8	<4.4	<4.4	10	6.6	None		
MW-5 4'	7/30/2019	<6.2	<60	<60	<2.0	<10	<2.0	<10	<5.1	<2.0	<1.0	<1.0	<10	<2.0	<5.1	<5.1	9	4.8	None		
MW-5 7'	7/30/2019	<6.7	<64	<64	<2.2	<11	<2.2	<11	<5.4	<2.2	<1.1	<1.1	<11	<2.2	<5.4	<5.4	15	5.0	None		
MW-6 5'	11/10/20	<11	<54	<54	<58	<290	<77	<390	<120	<77	<0.057	<39	<190	<77	<77	<77	6.9	6.5	None		
MW-6 10'	11/10/20	<7.7	<63	<63	<34	<210	<57	<290	<86	<57	<0.061	<29	<140	<57	<57	<57	2.5	3.5	None		
MW-6 15'	11/10/20	<7.4	<63	<63	<42	<210	<56	<280	<83	<56	<0.064	<28	<140	<56	<56	<56	7.6	13	None		
P4 12'	11/10/20	<8.0	<58	<58	<44	<220	<59	<300	<89	<59	<0.062	<30	<150	<59	<59	<59	4.1	6.5	None		
D6 12'	11/10/20	<7.1	<57	<57	<39	<200	<53	<260	<79	<53	<0.058	<26	<130	<53	<53	<53	5.1	6.1	None		
SS-1 4'	11/11/20	<5.7	<53	<53	<34	<170	<46	<230	<69	<46	<0.056	<23	<110	<46	<46	<46	34	8.2	None		
SS-1 8'	11/11/20	<6.8	<61	<61	<41	<200	<54	<270	<81	<54	<0.061	<27	<140	<54	<54	<54	8.6	7.6	None		
SS-1 12'	11/11/20	<6.8	<62	<62	<41	<200	<54	<270	<82	<54	<0.063	<27	<140	<54	<54	<54	11	11.0	None		
WS-1 4'	11/11/20	<6.9	<57	<57	<42	<210	<55	<280	<83	<55	<0.057	<28	<140	<55	<55	<55	10	6.4	None		
WS-1 8'	11/11/20	<8.7	<72	<72	<52	<260	<70	<350	<100	<70	<0.067	<35	<170	<70	<70	<70	15	6.9	None		
WS-1 12'	11/11/20	<6.9	<61	<61	<41	<210	<55	<280	<83	<55	<0.059	<28	<140	<55	<55	<55	9.7	12.0	None		
NS-1 4'	11/11/20	<5.6	<55	<55	<33	<170	<44	<220	<67	<44	<0.055	<22	<110	<44	<44	<44	5	5.4	None		
NS-1 8'	11/11/20	<5.6	<62	<62	<42	<210	<56	<280	<83	<56	<0.062	<28	<140	<56	<56	<56	6.2	5.2	None		
NS-1 12'	11/11/20	<5.7	<62	<62	<43	<210	<57	<280	<85	<57	<0.062	<28	<140	<57	<57	<57	6.8	7.4	None		
NSW-1 4'	11/11/20	<6.3	<59	<59	<38	<190	<50	<250	240	<50	<0.058	<25	280	<50	<50	<50	9	6.7	None		
NSW-1 8'	11/11/20	<6.7	<64	<64	<40	<200	<54	<270	<81	<54	<0.064	<27	<130	<54	<54	<54	8.3	5.3	None		
NSW-1 12'	11/11/20	<6.5	<61	<61	<39	<190	<52	<260	<78	<52	<0.058	<26	<130	<52	<52	<52	9.3	11.0	None		
WSW-1 4'	11/11/20	36.0	<55	<55	<34	<170	<45	<220	<67	<45	<0.053	<22	<110	<45	81.0	<45	4	4.3	None		
WSW-1 8'	11/11/20	<6.6	<63	<63	<40	<200	<53	<270	<80	<53	<0.063	<27	<130	<53	<53	<53	4	4.0	None		
WSW-1 12'	11/11/20	<5.9	<57	<57	<36	<180	<47	<240	<71	<47	<0.057	<24	<120	<47	<47	<47	10	10.0	None		
SSW-1 4'	11/11/20	<7.2	<62	<62	<43	<220	<58	<290	<87	<58	<0.064	<29	<140	<58	<58	<58	12	9.5	None		

BLAES Environmental Management, Inc.

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Sample ID	Date Collected	NWTPH-GX (mg/Kg)	NWTPH-DX (mg/Kg)	NWTPH-O (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethylbenzene (ug/Kg)	m-Xylenes p-Xylenes (ug/Kg)	o-Xylenes (ug/Kg)	MTBE (ug/Kg)	EDB (ug/Kg)	EDC (ug/Kg)	Naph (ug/Kg)	Isopropyl (ug/L)	1,2,4-TMB (ug/L)	1,3,5-TMB (ug/L)	Arsenic (mg/Kg)	Lead (mg/Kg)	Other VOCs ug/L
SSW-1 8'	11/11/20	<7.4	<64	<64	<44	<220	<59	<300	<89	<59	<0.065	<30	<150	<59	<59	<59	6.3	4.7	None
SSW-1 12'	11/11/20	<6.3	<61	<61	<38	<190	<51	<250	<76	<51	<0.058	<25	<130	<51	<51	<51	7.1	10.0	None
MTCA Cleanup Standards Method A		30/100	2000	2000	30	7,000	6,000	9,000	100	5	NE	5000	NE	NE	NE	NE	20	250	VARIOUS

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Table A4: Groundwater Monitoring Results

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE LABORATORY ANALYTICAL RESULTS

Circle K Store #2706032
590 Gage Boulevard
Richland, Washington

Sample ID	Date Collected	NWTPH-Gx (ug/L)	NWTPH-Dx (ug/L)	NWTPH-O (ug/L)	EPA Method 8260															Total Lead (ug/L)	Other VOCs (ug/L)
					Benzene (ug/L)	Toluene (ug/L)	EB (ug/L)	m&p-Xylenes (ug/L)	o-Xylene (ug/L)	MTBE (ug/L)	EDB (ug/L)	EDC (ug/L)	Naph (ug/L)	Isoprop (ug/L)	1,2,4-TMB (ug/L)	1,3,5-TMB (ug/L)	Arsenito (ug/L)				
MW-1	8/8/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	18	<4.0	Chloroform (0.76) *		
	9/25/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.099	<0.20	<1.0	<1.0	<0.30	<0.50	13	<4.0	Chloroform (0.7) *		
	12/17/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.098	<0.20	<1.0	<1.0	<0.30	<0.50	14	<4.0	None		
	5/16/2020	<250	<100	<330	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	12	<8.0	Chloroform (0.61) *		
	11/12/2020	<150	<100	<330	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	14	<4.0	Chloroform (0.76) *		
	4/19/2021	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	28	17	Chloroform (1.4) * Dichlorobromomethane (0.25) *		
MW-2	8/8/19	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	17	<4.0	Chloroform (8.3) * Carbon Tetra (0.86) Tetrachloroethene (1.8)		
	9/25/2019	<250	410	1600	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	13	<4.0	Chloroform (8.7) * Carbon Tetra (0.40) Tetrachloroethene (1.0)		
	12/17/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	13	<4.0	Chloroform (1.1) *		
	5/16/2020	<250	<100	<330	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.0099	<0.20	<1.0	<1.0	<0.30	<0.50	12	<8.0	Chloroform (2.8) *		
	11/12/2020	<150	<100	<330	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	24	11	Chloroform (1.6) *		
	4/19/2021	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	26	14	Chloroform (3.8) * Dichlorobromomethane (0.20) *		
MW-3	8/8/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.0099	<0.20	<1.0	<1.0	<0.30	<0.50	18	<4.0	Chloroform (0.38) *		
	9/25/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.0099	<0.20	<1.0	<1.0	<0.30	<0.50	13	<4.0	Chloroform (0.38) *		
	12/17/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.0099	<0.20	<1.0	<1.0	<0.30	<0.50	14	<4.0	None		
	5/16/2020	<250	<100	<320	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	12	<8.0	Chloroform (0.37) *		
	11/12/2020	<150	100	<320	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	18	4.8	Chloroform (0.80) *		
	4/19/2021	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	27	18	Chloroform (1.2) * Dichlorobromomethane (0.23) *		
MW-4	8/8/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	18	<4.0	Chloroform (0.86) * Carbon Tetra (0.31)		
	9/25/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	11	<4.0	Chloroform (0.80) * Carbon Tetra (0.22)		
	12/17/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	12	<4.0	Chloroform (0.38) *		
	5/16/2020	<250	<100	<320	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	11	<8.0	Chloroform (0.26) *		
	11/12/2020	<150	<100	<320	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	18	8.8	Chloroform (0.44) *		
	4/19/2021	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	22	13.0	Chloroform (0.82) *		
	8/8/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.0099	<0.20	<1.0	<1.0	<0.30	<0.50	20	7.7	Chloroform (0.83) *		
	9/25/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.0099	<0.20	<1.0	<1.0	<0.30	<0.50	10	<4.0	Chloroform (0.40) *		

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Table A5: Groundwater Monitoring Results Continued

Sample ID	Date Collected	NWTPH-Gx (ug/L)	NWTPH-Dx (ug/L)	NWTPH-O (ug/L)	Benzene (ug/L)	Toluene (ug/L)	EB (ug/L)	m&p Xylenes (ug/L)	o-Xylene (ug/L)	MTBE (ug/L)	EDB (ug/L)	EDC (ug/L)	Naph (ug/L)	Isoprop (ug/L)	1,2,4-TMB (ug/L)	1,3,5-TMB (ug/L)	Arsenite (ug/L)	Total Lead (ug/L)	Other VOCs (ug/L)
MW-5	12/17/2019	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.0099	<0.20	<1.0	<1.0	<0.30	<0.50	14	<4.0	Chloroform (0.27) *
	5/16/2020	<250	<100	<330	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	12	<8.0	Chloroform (0.33) *
	11/12/2020	<150	<100	<330	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	44	37	Chloroform (0.68) *
	4/19/2021	<150	<100	<330	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	38	29	Chloroform (0.82) *
MW-6	11/12/2020	280	110	<330	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	18	4.4	Chloroform (0.68) *
	4/19/2021	<250	<110	<350	<0.20	<0.20	<0.20	<0.50	<0.50	<0.30	<0.01	<0.20	<1.0	<1.0	<0.30	<0.50	48	35	Chloroform (1.1) *
																			Dichlorobromomethane (0.20) *
MTCA Cleanup Standards		800	600	600	6	1,000	700	1,000	20	0.01	NA	180	NA	NA	NA	NA	6	16	NA

Notes:

* Laboratory analyte detected is associated with the tapwater used for decon rinsing

EB Ethylbenzene

EPA U.S. Environmental Protection Agency

mg/L milligrams per liter (parts per million)

ug/L micrograms per liter (parts per billion)

NWTPH-Gx Northwest Total Petroleum Hydrocarbons - Gasoline Range

MTBE Methyl-Tert-butyl Ether

EDB Ethylene Dibromide

Naph Naphthalene

Isoprop Isopropylbenzene

TMB Trimethylbenzene

BOLD Concentration exceeds laboratory reporting limit or method detection limit

RED Concentration exceeds applicable MTCA Cleanup Standard

NA MTCA cleanup standard not available

ND Not Detected above reporting limit

MTCA Model Toxics Control Act